(c) The month and year of production, which may be in the form of a serial number or a code in those instances where the records specified in § 211.209(a)(1)(iv) are maintained;

(d) The following statement: "Improper fit of this device will reduce its effectiveness in attenuating noise. Consult the enclosed instructions for proper fit";

(e) Instructions as to the proper insertion or placement of the device; and

(f) The following statement: "Although hearing protectors can be recommended for protection against the harmful effects of impulsive noise, the Noise Reduction Rating (NRR) is based on the attenuation of *continuous* noise and may not be an accurate indicator of the protection attainable against *impulsive* noise such as gunfire."

[44 FR 56127, Sept. 28, 1979, as amended at 45 FR 8275, Feb. 6, 1980]

§ 211.205 Special claims.

(a) Any manufacturer wishing to make claims regarding the acoustic effectiveness of a device, other than the Noise Reduction Rating, must be prepared to demonstrate the validity of such claims.

(b) [Reserved]

[44 FR 56139, Sept. 28, 1979, as amended at 47 FR 57716, Dec. 28, 1982]

§ 211.206 Methods for measurement of sound attenuation.

§ 211.206–1 Real ear method.

(a) The value of sound attenuation to be used in the calculation of the Noise Reduction Rating must be determined according to the "Method for the Measurement of Real-Ear Protection of Hearing Protectors and Physical Attenuation of Earmuffs." This standard is approved as the American National Standards Institute Standard (ANSI STD) S3.19–1974. The provisions of this standard, with the modifications indicated below, are included by reference in this section. Copies of this standard may be obtained from: American National Standards Institute, Sales Department, 1430 Broadway, New York, New York 10018.

(b) For the purpose of this subpart only, sections 1, 2, 3 and appendix A of the standard, as modified below, shall

be applicable. These sections describe the "Real Ear Method." Other portions of the standard are not applicable in this section.

(1) The sound field characteristics described in paragraph 3.1.1.3 are "required."

(2) Sections 3.3.2 and 3.3.3 shall be accomplished in this order during the same testing session. Any breaks in testing should not allow the subject to engage in any activity that may cause a Temporary Threshold Shift.

(3) Section 3.3.3.1(1) shall not apply. Only "Experimenter fit" described in Section 3.3.3.1(2) is permitted.

(4) Section 3.3.3.3 applies to all devices except custom-molded devices. When testing custom-molded devices, each test subject must receive his own device molded to fit his ear canal.

[44 FR 56139, Sept. 28, 1979, as amended at 45 FR 8275, Feb. 6, 1980]

§ 211.206–2 Alternative test data.

(a) In lieu of testing according to § 211.206–1, manufacturers may use the latest available test data obtained according to ANSI STD Z24.22–1957 or ANSI STD S3.19–1974 to determine the mean attenuation and standard deviation for each test frequency and the NRR calculated from those values. Manufacturers whose data is based on the ANSI STD Z24.22–1957 measurement procedure must state in the supporting information required by § 211.204–4 that the mean attenuation and standard deviation values used to calculate the NRR are based on ANSI STD Z24.22–1957.

(b) Manufacturers who initially use available data based on ANSI STD Z24.22–1957 must retest within one year of the effective date of this regulation (by September 27, 1981) the affected categories of hearing protectors in accordance with § 211.206–1 of the regulation, and must relabel those categories as necessary.

(c) Manufacturers who use available data based on ANSI STD S3.19–1974 are not required to retest the affected categories of hearing protectors.

(d) If a manufacturer has both ANSI STD S3.19–1974 test data and ANSI STD Z24.22–1957 test data on a hearing protector category, that manufacturer

must use the data obtained according to ANSI STD S3.19–1974.

[45 FR 8275, Feb. 6, 1980]

§§ 211.206–3—211.206–10 Alternative test methods. [Reserved]

§ 211.207 Computation of the noise reduction rating (NRR).

Calculate the NRR for hearing protective devices by substituting the average attenuation values and standard deviations for the pertinent protector category for the sample data used in

steps #6 and #7 in Figure 2. The values of −.2, 0, 0, 0, −.2, −.8, −3.0 in Step 2 and −16.1, −8.6, −3.2, 0, +1.2, +1.0, −1.1 in Step 4 of Figure 2 represent the standard "C"- and "A"-weighting relative response corrections applied to any sound levels at the indicated octave band center frequencies. (NOTE: The manufacturer may label the protector at values lower than indicated by the test results and this computation procedure, e.g. lower NRR from lower attenuation values. (Ref. § 211.211(b).)

FIGURE 2—COMPUTATION OF THE NOISE REDUCTION RATING

Octave band center frequency (Hz)	125	250	500	1000	2000	3000	4000	6000	8000
1 Assumed Pink noise (dB)	100	100	100	100	100	....	100	....	100
2 "C" weighting corrections (dB)	−.2	0	0	0	−.2	....	−.8	....	−3.0
3 Unprotected ear "C"-weighted level (dB)	99.8	100	100	100	99.8	....	99.2	....	97.0
(The seven logarithmically added "C"-weighted sound pressure levels of Step #3 equal;107.9 dS)									
4 "A"-weighting corrections (dB)	−16.1	−8.6	−3.2	0	+1.2	....	+1.0	....	−1.1
5 Unprotected ear "A"-weighted level (step ι1-step ι4) (dB)	83.9	91.4	96.8	100	101.2	....	101	....	98.9
6 Average attenuation in dB at frequency	21	22	23	29	41	....	(43+47)/2=45	....	(41+36)/2=38.5
7 Standard deviation in dB at frequency	3.7	3.3	3.8	4.7	3.3	....	(3.3+3.4)=6.7	....	(6.1+6.5)=12.6
	×2	×2	×2	×2	×2	....	....	....	....
	7.4	6.6	7.6	9.4	6.6	....	....	....	....
8 Step ι5-(step ι6-step ι7) develops the protected ear "A" weighted levels (dB)	70.3	76.0	81.4	80.4	66.8	....	62.7	....	73.0
(The seven logarithmically added "A"-weighted sound pressure levels of Step ι8 using this sample data=85.1 dB)									

9 NRR=Step ι3—Step ι8—3 dB*; =107.9 dB—85.1 dB—3 dB*; =19.8 dB (or 20) (Round values ending in .5 to next lower whole number).

*Spectral uncertainty (as defined in § 211.203).

The value for #3 is constant. Use Logarithmic mathematics to determine the combined value of protected ear levels (Step #8) which is used in Step #9 to exactly derive the NRR; or use the following table as a substitute for logarithmic mathematics to determine the value of Step #8 and thus very closely approximate the NRR.

Difference between any two sound pressure levels being combined (dB)	Add this level to the higher of the two levels (dB)
0 to less than 1.5	3
1.5 to less than 4.5	2
4.5 to 9	1
Greater than 9	0

§ 211.208 Export provisions.

(a) The outside of each package or container containing a hearing protective device intended solely for export must be so labeled or marked. This will include all packages or containers that are used for shipping, transporting, or dispersing the hearing protective device along with any individual packaging.

(b) In addition, the manufacturer of a hearing protective device intended solely for export is subject to the export exemption requirements of § 211.110–3 of subpart A.

(Sec. 10(b)(2), Pub. L. 92–574, 86 Stat. 1242 (42 U.S.C. 4909(b)(2)))